

CLIMATOLOGICAL DATA FOR APRIL 1913.

DISTRICT NO. 5, UPPER MISSISSIPPI VALLEY.

GEO. M. CHAPPEL, District Editor.

GENERAL SUMMARY.

In most respects April, 1913, in the upper Mississippi Valley was a seasonable month. With the exception of the great flood at Cairo, Ill., there were no features worthy of more than passing notice. Early in the month the Chippewa River in Minnesota overflowed its banks, largely owing to the formation of ice jams, and caused considerable damage. The movement of thousands of tons of thick ice carried off several log booms. On the evening of the 2d a miniature tornado is reported to have swept over a strip of territory about 4 miles long in Madison County, Iowa. The damage was inconsequential.

As a whole the month was somewhat warmer than usual, and the precipitation was slightly deficient. The weather was more favorable in North Dakota and northern Minnesota than elsewhere, the month there being one of the warmest Aprils on record. In those districts the general absence of rainy days enabled outdoor activities to progress with little interruption.

The frosts of the month were not damaging, since as a rule vegetation had not reached the stage of susceptibility to injury from that cause.

The following table presents in condensed form the leading features of climatological interest for the various parts of the district:

Parts of States within district 5.	Temperature.				Precipitation.					
	Mean.	Departure. Highest.	Highest.	Lowest.	Average.	Departure.	Greatest total.	Least total.	Average snowfall.	Average number of days with precipitation.
North Dakota.....	46.3	+5.8	94	11	0.75	-0.71	1.43	0.02	2.1	5
Minnesota.....	46.8	+3.6	92	11	1.88	-1.12	5.32	.79	3.0	7
South Dakota.....	47.1	+2.7	90	21	2.06	+.30	2.52	1.61	9.5	8
Wisconsin.....	46.3	+2.3	88	10	1.93	-1.67	3.29	.74	2.6	6
Iowa.....	50.2	+1.8	88	20	2.90	-.02	5.33	1.12	1.5	9
Missouri.....	54.4	+.3	88	25	3.24	-.21	4.53	1.30	T.	7
Indiana.....	49.6	+1.8	81	26	2.51	-.34	3.28	2.08	0	9
Illinois.....	52.1	+1.1	90	23	2.81	-.68	4.34	1.53	0.1	9

TEMPERATURE.

The mean temperature for the district was 48.7° , or 2.4° higher than the normal. Except in the extreme south, where there was a slight deficiency in the average temperature, the month was warmer than usual throughout the district. In North Dakota and northern Minne-

sota it was one of the warmest Aprils in more than 40 years, the average temperature being from 5° to 7° above the normal. The highest mean temperature was 57.8° at Cairo, Ill., and the lowest was 40.2° at Vudesare, Wis. A good example of the uniformity of temperatures in the district is afforded in Minnesota, where the average temperature in the extreme northwest was as high as or even higher than it was in the southwestern part of the State. The highest monthly temperatures at the individual stations from Iowa northward occurred, in a large percentage of cases, on the 29th or 30th, but in much of Missouri and Illinois and in Indiana they were experienced on the 16th, 17th, 22d, or 23d. In only a few instances was the highest temperature at any station lower than 80° , the lowest being 72° , at Trout Lake, Wis. Ten stations had a temperature of 90° or higher, and all of them, with the exception of Carbondale, Ill., are in the Dakotas or Minnesota. The highest temperature reported was 94° , at Willow City, N. Dak., on the 29th. The warm spell at the close of the month was attended over the northern part of the district by temperatures almost as high as any previously recorded in April in the last 40 years. Most of the lowest temperatures of the month occurred during the cool spells of the 5th-7th, 12th-13th, and 26th-27th. At northern stations the last-named cool spell was the most important, while in the south the first two contributed most of the lowest temperatures. The lowest temperature reported was 10° , at Lone Lake, Wis., on the 7th. Freezing temperature occurred throughout the district, except in the extreme southern part, the highest minimum temperature being 38° , at Cairo, Ill.

PRECIPITATION.

The average precipitation for the district was 2.28 inches, or 0.36 inch less than the normal. As a rule the amounts were least in North Dakota and greatest in Missouri. The greatest amount reported was 5.33 inches, at Pocahontas, Iowa, and the least was 0.02 inch, at Crosby, N. Dak. Except in eastern Iowa, northern Illinois, and southern Wisconsin the precipitation of the month was timely. Over the last districts named but little occurred after the 12th, some stations receiving not more than a trace. The bulk of the rainfall came in three periods, viz: The 1st-4th, 7th-12th, and 20th-28th. During the last-named period, however, the falls were much scattered. The second period was of rather remarkable character, in that precipitation was almost continuous for 4 days at many stations.

Snow fell part of this time in the north, and where the precipitation was in the form of rain the temperature was not much above the freezing point. Over a large area there was no sunshine whatever on the 7th, 8th, 9th, and 10th.

The only instance of excessive precipitation at the rate of 2.5 inches or more in 24 consecutive hours was at Hannibal, Mo., where 2.99 inches occurred on the 3d. The average number of rainy days was 9.

Snow.—Some snow fell as far south as Springfield, Ill., but amounts of 5 inches or more occurred only north of northern Iowa. The greatest monthly snowfall was 23 inches, at Keopenick, Wis. The average amount for the district was 1.8 inches.

RIVERS.

The following reports on conditions during the month are given:

By James H. Spencer, official in charge of Dubuque district:

There were no serious floods in the district. There were, however, the usual spring freshets in the upper Wisconsin Valley. About the 3d an ice jam occurred near Heights, Wis., between Wausau and Merrill, and caused the water to overflow the tracks of the Chicago, Milwaukee & St. Paul Railway, making it unsafe for 600 to 800 feet. About 150 feet of track was washed out. The loss was approximately \$3,000. The water in the upper Wisconsin was high all the month, but light rainfall prevented a flood of any consequence.

By J. M. Sherier, official in charge of Davenport district:

Good stages of water in the Mississippi prevailed throughout the Davenport district; the highest gauge readings occurred about the middle of the month. The highest stage at Davenport was 10.4 feet, on the 17th and 18th.

By Clarence J. Root, section director of Illinois:

The Illinois River was above flood stage throughout the month, and the high water delayed farming operations in the bottoms. The highest stage in the upper Illinois occurred on the 1st; the lowest, on the 30th. The levees at Naples and Meredosia broke on the 3d, flooding parts of those towns and 10,000 acres of farm land. The flood at Cairo broke all records, the highest stage being 54.7 feet. The city proper, although entirely surrounded by water, was saved by the levees and the excellent work of the militia and citizens. The factory district to the north was flooded.

By B. L. Waldron, official in charge of Hannibal district:

A slight flood occurred in the Mississippi River from Quincy to below Hannibal during the last few days of March and first few days of April.

At Quincy the water was above the flood stage from March 30 to April 2 and the highest was 14.5 feet on March 31. At Hannibal the water was above the flood stage from the evening of March 28 to April 5. The highest was 14.3 feet on March 31 and April 1. Advisory warnings were issued on March 26 and flood warnings on March 28, 29, 30, and 31. The crest of the flood was forecasted to within 0.2 of a foot. There was no material damage to property or crops nor to farm land by erosion or deposit. The warnings were of some value. Live stock that was on islands or low bottom lands was moved to places of safety and considerable quantities of cordwood and lumber were moved or made fast. The amount of property saved probably amounted to \$1,500 to \$2,000.

MISCELLANEOUS.

Slightly more than the usual amount of sunshine prevailed over most of the district. The average number of clear days was 15; partly cloudy, 6; cloudy, 9. The prevailing wind at more than two-thirds of the stations was either northwest, southeast, or south, all three directions being reported about the same number of times. The highest velocity reported was 46 miles from the south, at St. Paul, Minn., on the 30th.

ERRATA.

Report for March, 1913: North Dakota data; Lakota; minimum temperature published -17° should be -25° ; greatest 24-hour precipitation published 0.12 should be 0.50; total snowfall published 13.4 should be 13.0. McLeod; maximum temperature published 55° should be 56° ; date, 8. Mayville; monthly mean temperature published 17.9° should be 18.0° ; lowest temperature published -13° should be -19° ; date, 2. Milnor; days with 0.01 inch or more precipitation published 2 should be 3. Minot; highest temperature published 46° should be 54° ; date, 31. Pembina; monthly mean temperature published 10.0° should be 6.4° ; highest temperature published 42° should be 43° ; date, 31. Minnesota data; Albert Lea; date of minimum temperature published 28 should be 29. Iowa data; Charles City; monthly mean temperature published 28.7° should be 28.6° ; departure of the mean temperature from the normal published $+0.3$ should be $+0.2^{\circ}$; Elma, monthly mean temperature published 27.1° should be 28.0° ; days with 0.01 or more precipitation published 8 should be 9; Mount Pleasant, total snowfall published 2.6 should be 6.1; Odebolt, number of partly cloudy days published 5 should be 12; number of cloudy days published 12 should be 5; Sioux City, total snowfall published 4.2 should be 4.6; Stockport, monthly mean temperature published 34.0° should be 34.2° ; days with 0.01 or more precipitation published 11 should be 12; Waverly, date of highest temperature published 18 should be 30.

REPORT ON FLOODS OCCURRING OR IN PROGRESS IN THE CAIRO, ILL., DISTRICT DURING THE MONTH OF APRIL, 1913.

By R. T. LINDLEY, Local Forecaster.

Heavy precipitation was prevalent over the Ohio and Wabash portions of this district from March 23 to 27, with total amounts reported during the period as follows: Cairo, 4.61; Paducah, Ky., 5.24; Shawneetown, Ill., 5.37; Mount Carmel, Ill., 9.16. Even greater amounts than that at Mount Carmel were reported from stations in Ohio and Indiana, draining into tributaries of the Wabash and the Ohio Rivers. The precipitation over the upper Ohio and its tributaries was sufficiently heavy to produce a crest stage in the Ohio at Cincinnati closely approaching that of 1884, the highest of record. The unprecedented stage in the Wabash at Mount Carmel, approximately 3 feet above any previous record there, was sufficient to create a crest in the Ohio flood higher than any previously recorded within the confines of this district.

It was realized that unprecedented stages would be reached in this district, and early in the progress of the flood warnings were distributed to that effect. No effort was spared in reaching all portions of the district affected, the office was kept open night and day, reports were received and bulletins issued on three successive Sundays, and no member of the office force stinted effort in an endeavor to inform and aid the public. That the effort was not unavailing is indicated—at Paducah, as an example, it is estimated that warnings issued from this office saved property to the value of \$1,000,000. No human lives were lost as a direct cause of the flood, but one life was lost, that of an intoxicated man, through falling out of a boat in Paducah.

A just approximation of the damages by flood in this district is very difficult to reach, but it would probably

TABLE 1.—Climatological data for April, 1913. District No. 5, Upper Mississippi Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmetted.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
<i>North Dakota.</i>																				
Amenia.	Cass.	954	15	47.2	+ 5.1	87	30	20	27	47	1.20	- 0.73	0.39	3.0	5	15	5	10	nw.	C. E. Wood.
Bottineau.	Bottineau.	1,638	21	44.8	+ 5.7	82	14	21	25	44	0.32	- 0.51	0.15	6	14	8	8	se.	H. F. Steinheir.	
Bowbells.		1,958	1	44.4		86	14	13	26	53	0.40		0.15	T.	3	21	0	9		G. H. Phelps.
Burke.	Towner.	1,488	12																E. T. Judd.	
Cando.	Divide.	6	45.8			82	14	11	25	46	0.02		0.02	0	1	22	5	3	se.	H. C. Kaschau.
Devils Lake.	Ramsey.	1,482	8	45.6	+ 7.4	84	29	25	26	40	0.83	- 1.20	0.39	1.4	8	14	8	8	se.	U. S. Weather Bureau.
Donnybrook.	Ward.	1,760	14	45.2	+ 5.3	83	14	15	26	45	1.15	+ 0.30	0.84	1.5	4	15	3	12	nw.	C. J. De Vore.
Dunseith.	Rolette.	17	44.4	+ 4.0		81	29	18	26	42	- 0.20		0.17	1.7	6	12	9	9	nw.	C. E. Goodsell.
Eckman.	Bottineau.	7																	Geo. Yenny.	
Edmore.	Ramsey.	1,524	7	45.8		89	15	23	26	54	1.25		0.63	2.5	5	18	2	10	se.	M. M. Van Osdel.
Fessenden.	Wells.	1,610	1	45.8															G. T. Seymour.	
Forman.	Sargent.	1,249	21	49.3	+ 5.4	89	15	21	27	47	0.88	- 0.62	0.31	1.3	5	19	2	9	se.	A. Maltby.
Grafton.	Walsh.	827	21	46.2	+ 6.2	84	29	18 ^a	11	48 ^a	0.88		0.74		3	19	2	9	nw.	A. R. T. Wylie.
Granville.	McHenry.	1,504	6	47.0		86	29	22	18	46	0.85		0.31	2.0	3	18	1	11	se.	W. A. Christianson.
Hannah.	Cavalier.	1,568	8	43.4		80	29	17	26	46	0.51		0.25	1.5	5	18	4	8	se.	J. Moffatt.
Hansboro.	Towner.	5	43.9			82	29	21	26	43	0.63		0.33		5	17	4	9	se.	Geo. Dale.
Hillsboro.	Traill.	901	7	48.6		85	30	21	27	44	1.09		0.23	0.75	1.2	7	9	17	nw.	F. E. Mayall.
Lakota.	Nelson.	1,579	13	46.0	+ 7.4	82	29	24	26	43	1.43	- 0.21	0.23		4	16	0	14	se.	C. R. Pettes.
Langdon.	Cavalier.	1,615	17	43.4		81	29	21	26	43	0.51		0.30	0.50	7	16	7	7	ne.	J. Woolner.
Larimore.	Grand Forks.	1,134	18	46.4	+ 6.3	85	29	18	1 ^a	46	0.89	- 0.63	0.45		7	17	4	9	nw.	J. M. Freeman.
Lisbon.	Ransom.	1,091	9	48.2	+ 6.9	87	15	19	27	51	0.97	- 1.12	0.50	5.0	4	17	4	9	nw.	W. S. Adams.
McKinney.	Renville.	1,640	19	46.2	+ 5.7	89	13 ^a	14	26	59	0.20	- 0.75	0.20	0	1	8	14	6	se.	N. P. Swenson.
McLeod.	Ransom.	1	48.7			87	30	20	27	44	0.87		0.30	5.0	7	16	7	7	se.	Martin Reinholz.
Manfred.	Wells.	1,605	10	47.0	+ 6.2	86	15 ^a	21	26	51	1.26	+ 0.02	0.68	2.0	5	16	6	8	se.	P. B. Anderson.
Mayville.	Traill.	975	17	48.4	+ 5.7	84	29	21	27	45	0.95	- 0.72	0.27		4	15	6	9	nw.	W. C. Gould.
Milnor.	Sargent.	1,097	1										0.48	5.0	6	12	8	10	w.	Hj. Edman.
Minot.	Ward.	1,557	17	46.6	+ 5.1	85 ^a	29	18	26	47 ^a	0.94	- 0.32	0.38	0.5	6	22	1	7	se.	Louise Bates.
Minto.	Walsh.	820	20	48.0	+ 7.4	85	29	20	27	45	0.71	- 0.90	0.19	1.5	4	16	4	10	se.	S. S. Marsh.
Oriska.	Barnes.	1,270	8	47.6		86	15	20	27	46	1.16		0.40	4.0	5	17	7	6	ne.	J. J. Taylor.
Park River.	Walsh.	998	9	47.4		84	29	20	27	46	0.57		0.20		6				se.	P. J. Prochaska.
Pembina.	Pembina.	789	39	43.6	+ 6.1	82	15	16	26	42	0.58	- 1.07	0.18	8	16	4	10	w.	C. W. Shumaker.	
Power.	Richland.	1,020	21	47.0	+ 4.8	88	15	19	27	53	0.90	- 0.98	0.30	3.5	6	17	2	11	se.	J. A. Power.
Towner.	McHenry.	11											1.10						se.	B. Bagley.
University.	Grand Forks.	830	21	47.6	+ 5.7	84	29	23	27	42	1.08	- 1.01	0.44	3.0	5	18	3	9	se.	U. S. Weather Bureau.
Wahpeton.	Richland.	962	19	47.2	+ 2.8	87	15	16	1	47	0.42	- 1.92	0.18	1.8	3	15	2	13	nw.	Fred E. Smith.
Walhalla.		966	6																Ivanhoe Lee.	
Westhope.	Bottineau.	7	46.4			84	14	24	10 ^a	47	0.43		0.26	0.5	4	13	11	6	se.	W. A. Meddaugh.
Willow City.	do.	1,471	21	45.8	+ 5.6	94	29	24	25	43	0.35	- 0.58	0.30	3.0	2	12	13	5	e.	M. A. Ostby.
<i>Minnesota.</i>																				
Albert Lea.	Freeborn.	1,229	22	49.0	+ 3.3	85	30	27	5	35	1.85	- 0.63	0.80	T.	7	10	12	8	sw.	Edward Carey.
Alexandria.	Douglas.	1,391	19	46.6	+ 5.0	88	30	24	27	45	1.71	- 0.49	0.48	3.0	9	13	3	14	nw.	P. O. Unumb.
Angus.	Polk.	870	11	46.5	+ 5.9	81	29	21	27	42	0.87	- 0.69	0.49	3.0	3	11	11	8	s.	John Nadovnik.
Bagley.	Clearwater.	7	44.6			87	30	15	27	49	0.79		0.40	0.2	4	11	6	6	se.	Jens Nelson.
Baudette.	Beltrami.	1,084	3	45.2		84	30	19	5 ^a	45	1.05		0.33	T.	7	20	2	8	nw.	J. A. Gjelhaug.
Beardsley.	Bigstone.	1,090	17	49.2	+ 4.5	92	30	21	27	46	1.72	- 0.68	0.60	12.0	5	13	8	9	nw.	G. L. Fitzgerald.
Bemidji.	Beltrami.	1,400	9										0.39		10				C. W. Warfield.	
Bird Island.	Renville.	1,039	23	47.7	+ 2.8	88	30	24	5	40	1.22	- 0.10	0.61	7.5	10	13	4	13	sw.	Dr. F. L. Pfiffer.
Brainerd.	Crow Wing.	1,215	7	48.1		90	30	21	5 ^a	47	2.32		1.40	T.	6	17	6	7	ne.	Theodore Miller.
Caledonia.	Houston.	1,179	20	48.0	+ 2.2	80	30	30	4 ^a	35	1.32	- 1.70	0.40	3.8	7	16	2	12	nw.	W. D. Belden.
Campbell.	Wilkin.	984	7	47.0		90	30	22	27	54	1.09		0.21	2.0	9	15	0	15	se.	J. T. Neiss.
Cass Lake.	Cass.	1,300	6								1.41		0.52	4.0	6				nw.	C. W. Burns.
Collegeville.	Stearns.	1,282	20	46.8	+ 2.0	85	30	25	27	36	1.73	+ 0.76	1.48	1.7	10	18	2	10	nw.	F. Tembreull.
Crookston.	Polk.	863	24	46.6	+ 4.7	84	30	25	27	38	1.13	- 0.75	0.38	T.	4	20	1	9	s.	A. G. Andersen.
Detroit.	Becker.	1,364	17	44.9	+ 5.0	88	30	19	27	50	1.03	- 0.77	0.35	0.7	5	20	3	7	se.	G. W. Peoples.
Ely.	St. Louis.	1,364	1	45.0		87	30	17	7	41	1.85		0.90	7.0	5	16	6	8	nw.	Iver Wisted.
Fairmont (near).	Martin.	1,240	26	47.0	+ 1.8	83	30	27	5	38	3.70	+ 0.87	1.45	5.0	9	11	8	8	se.	W. F. Wherland.
Faribault.	Rice.	1,003	15	48.5	+ 3.3	90	30	26	27	49	1.03	- 1.39	0.28	3.0	7	11	6	13	sw.	E. D. Akin.
Farmington.	Dakota.	902	25	48.5	+ 3.3	90	30	26	27	49	1.03	- 1.39	0.28	3.0	7	11	6	13	se.	C. E. Kissinger.
Fergus Falls.	Ottertail.	1,210	21	48.0	+ 4.6	88	30	25	27	38	1.01	- 1.05	0.22	3.4	10	15	7	8	se.	J. J. Tucker.
Fort Ripley.	Crow Wing.	1,136	5	46.4		88	30	16	27	47	1.32	- 0.59	0.41	1.5	8	14	0	16	ne.	O. N. Hem.
Fosston.	Polk.	1,289	3	45.5		85	15	20	27	40	0.90		0.36	0.9	6	16	8	6	n.	L. V. Koos.
Glencoe.	McLeod.	1,000	16																se.	C. F. Greening.
Grand Meadow.	Mower.	1,333	25	47.4	+ 2.9	84	30	27	12 ^a	37	1.55	- 0.83	0.45	0.7	9	12	8	10	se.	U. S. Engineer Corps.
Gull Lake Dam.	Cass.	1,215	2	46.1		87	30	19	6	44	1.52		0.65	0.8	5	10	9	10	s.	D. A. Robertson.
Hallock.	Kittson.	815	14	47.4	+ 6.8	82	29	22	26	42	1.14	- 0.17	0.50	T.	5	15	5	10	s.	A. C. Holstrom.
Halstad.	Norman.	870	7	46.4		87	15 ^a	22	27	53	1.53		0.51							

TABLE 1.—Climatological data for April, 1913. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.			
			Length of record, years.	Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmetted.	Number of rainy days, 0.01 inch or more.					
Minnesota—Continued.																				
Redwood Falls.	Redwood.	1,050	6	47.8		88	30	25	5†	47	4.91	+ 2.69	1.10	2.0	10	18	9	se.		
Reeds Landing.	Wabasha.	681	17								1.53	- 0.35	0.40	0	8	17	0	se.		
Rochester.	Olmstead.	991	8	46.9		87	30	24	6†	53	1.28		0.44	0	6	18	1	se.		
Roseau.	Roseau.	1,040	3	45.3		81	30	18	27	43	1.23		0.46	T.	5	20	4	se.		
St. Charles.	Winona.	850	22	48.2	+ 2.9	84	30	24	6†	41	1.21	- 1.35	0.33	2.0	6	14	5	n.		
St. Cloud.	Sherburne.	1,020	26	49.8	+ 5.6	90	30	25	27	44	1.21	+ 0.53	1.29	3.3	9	16	5	ne.		
St. Paul.	Ramsey.	940	42	49.2	+ 3.5	86	30	30	27	35	1.62	- 0.71	0.56	4.5	8	12	9	n.		
St. Peter.	Nicollet.	825	18															State Reformatory.		
Sandy Lake Dam.	Aitkin.	1,234	20	44.0	+ 3.8	85	30	15	6	46	2.05	- 0.04	1.08	0	8	13	9	U. S. Weather Bureau.		
State Sanatorium.	Cass.	5	45.6			85	30	21	27	39	1.60		0.60	2.5	7	17	2	State Hospital.		
Stillwater.	Washington.	694	7								2.16		0.95	T.	8	19	0	U. S. Engineer Corps.		
Taylors Falls.	Chisago.	759	6	45.0		87	30	20	6	48	2.32		0.75	1.5	6	15	1	Dr. G. W. Beach.		
Thief River Falls.	Pennington.	1,137	2	46.7		82	29	20	27	47	1.69		0.67	1.0	4	20	2	Oscar Ostrom.		
Warren.	Marshall.	859	1	48.4		85 ^a	29	23	27	48 ^a	0.80		0.50	3.0	2	8	9	Minneapolis Gen. Elec. Co.		
Warroad.	Roseau.	1,069	3	45.2		87	30	19	27	47	1.29		0.48	T.	4	22	1	E. W. Lown.		
Winnibago.	Faribault.	1,100	15	47.0	+ 1.3	88	30	23	1	44	3.58	+ 1.57	1.10	5.0	10	14	9	P. H. Holm.		
Winnibogoshish.	Itasca.	1,300	25	44.4	+ 4.7	81	16	20	6†	41	1.66	- 0.10	0.68	3.2	7	14	5	G. A. Sawyer.		
Winona.	Winona.	700	17	50.8	+ 3.8	89	30	25	6	43	1.43	- 1.04	0.33	1.0	7	14	5	H. H. Haught.		
Worthington.	Notles.	1,593	18	44.3	- 0.2	79	30	22	12	37	3.87	+ 1.72	0.85	7.0	13	17	2	U. S. Engineer Corps.		
Zumbrota.	Goodhue.	917	17															P. C. Myers.		
South Dakota.																		M. P. Mann.		
Milbank.	Grant.	1,148	22	46.8	+ 2.7	90	30	21	27	48	2.52	+ 0.30	0.71	9.0	10	13	7	Mary Partridge.		
Sisseton.	Roberts.	1,202	7	47.4		80	14†	26	26	40	1.61		0.50	10.0	6	16	1	George Gray.		
Wisconsin.																				
Antigo.	Langlade.	1,489	19	45.1	+ 2.6	80	30	18	20	41	1.85		0.54	4.0	8	14 ^b	0 ^b	Elton C. Larzelere.		
Barron.	Barron.	1,115	22	45.7	+ 3.0	82	30	22	6	44	1.84	- 0.42	0.80	L. 0	7	14	6	Wm. A. Kent.		
Beloit.	Rock.	750	47	49.1	+ 2.0	82	23	27	6	40	1.00	- 1.81	0.70	0	4	14	9	Smith Observatory.		
Big St. Germain Dam.	Vilas.	1,590	3	42.8		82	30	15	20	50	1.33		0.94	7.2	6	16	6	Fred Hessen.		
Brodhead.	Green.	812	15	49.8	+ 2.5	82	30	24	6	44	1.46	- 1.71	1.03	T.	6	16	9	Hector D. Kirkpatrick.		
Burnett.	Dodge.	880	9	46.6		79	30	26	20	43	1.60		0.95	1.0	6	12	11	George W. Smith.		
Cornell.	Chippewa.	993	1								1.72		0.60	2.0	6	22	4	Brunet Falls Mfg. Co.		
Cottage Grove.	Dane.	888	2								1.87		0.73	1.2	7	15	10	John F. Melish.		
Darlington.	Lafayette.	867	7	48.8		82	30	22	6	48	1.91		1.10	0	5	17	3	Sever P. Nelson.		
Deerskin Dam.	Forest.	1,685	3	41.0		83	23	12	6	58	1.30		0.52	2.1	9	20	3	Wm. E. O'Neal.		
Delavan.	Walworth.	920	22	48.2	+ 1.1	80	23	25	20	40	1.94	- 0.93	0.62	T.	9	15	6	Elwood S. Austin.		
Dodgeville.	Iowa.	1,220	13															Chas. H. Berryman.		
Downing.	Dunn.	983	11	46.0	+ 2.5	85	30	20	6†	55	0.85	- 1.65	0.65	0	2	12	0	Eugene F. Stoddard.		
Eau Claire.	Eau Claire.	800	22	49.1	+ 3.1	81	30	22	6	46	2.31	- 0.15	0.71	2.0	9	13	9	Robert D. Whitford.		
Glen Flora.	Rusk.	1,475	1	44.8		81	30	19	9	51	2.22		0.98	3.5	4	21	3	G. A. Durgin.		
Grand Rapids.	Wood.	1,021	14	45.6	+ 1.2	82	23	22	7	51	2.48	- 0.08	0.65	2.6	7	17	7	Geo. T. Nixon.		
Grantsburg.	Burnett.	1,095	22	47.3	+ 3.7	86	30	18	6	50	1.82	- 0.78	0.82	2.0	7	19	6	Chester Ahlstrom.		
Hancock.	Waushara.	1,091	21	48.6	+ 3.7	85	30	24	6	42	2.21	- 0.37	0.78	0	6	18	5	Frederick B. Hamilton.		
Hatfield.	Jackson.	973	19	46.4	- 0.6	86	30	16	6	53	1.49	- 1.03	0.44	3.5	5	12	11	Walter S. Woods.		
Hayward.	Sawyer.	1,107	22	46.6	+ 4.5	85	30	18	12	50	0.74	- 1.21	0.40	6.0	6	18 ^b	3 ^b	A. E. Johnson.		
Hillsboro.	Vernon.	1,000	22	45.9	+ 1.2	79	30	20	6	46	2.35	- 0.62	0.87	1.0	4	14	12	Emil V. Wernick.		
Koepenick.	Langlade.	1,683	22	44.6	+ 2.9	82	30	18	7†	46	2.70	- 0.12	0.60	13.0	7	1	24	5	Edward S. Koepenick.	
La Crosse.	La Crosse.	714	41	49.6	+ 2.3	83	30	26	6	37	1.57	- 0.72	0.65	0.6	7	12	9	U. S. Weather Bureau.		
Lake Mills.	Jefferson.	897	22	47.4	+ 1.6	81	23	27	6†	40	1.33	- 1.70	0.54	0.2	6	13	9	S. Newton Dexter Smith.		
Lancaster.	Grant.	1,070	22	48.6	+ 2.1	80	30	25	6	39	2.32	- 0.66	1.08	0	6	11 ^b	7 ^b	Edward Pollock.		
Long Lake.	Oneida.	1,592	5	41.2		81	30	10	7†	54	1.56		0.36	7.0	9	20	1	Louis Frank.		
Madison.	Dane.	974	44	47.2	+ 2.7	79	30	28	7	36	1.54	- 0.84	0.71	0.5	6	9	7	U. S. Weather Bureau.		
Marsfield.	Wood.	1,276	0	45.8		80	30	26	7†	38	2.48		0.65	3.1	8	16	7	Agr. Expr. Station.		
Mather.	Juneau.	962	9	45.3		81	30	22	6	46	2.63		0.70	0	8	16	3	Frank Evans.		
Mauston.	do.	882	17	47.4	+ 1.9	83	23	25	6	40	2.10	- 0.39	0.80	0	5	17	7	Eugene L. Hitchcock.		
Meadow Valley.	do.	974	22	46.4	+ 1.3	84	30	21	7†	48	2.29	- 0.19	0.66	T.	5	8	15	7	Charles H. Johnson.	
Medford.	Taylor.	1,420	24	45.7	+ 3.2	80	30	23	7†	39	3.09	+ 0.73	1.27	2.5	8	17	6	Wm. Zeit.		
Merrill.	Lincoln.	1,267	7	44.7		79	30	20	7†	51	2.47		0.76	6.2	5	16	2	O. F. Lueck.		
Minoequa.	Oneida.	1,604	9	42.0		80	30	11	7	44	1.93		0.40	6.0	7	14	9	Benjamin W. Applebee.		
Mondovil.	Buffalo.	738	5	48.1		85	30	24	6	43	1.57		0.53	6.0	9	15	6	Dr. Chas. Heaslett.		
Mount Horeb.	Dane.	1,226	9	47.2		79	17	24	20	42	1.98		0.90	T.	6	15	5	W. M. Lewis.		
Muscosa.	Grant.	666	4	48.4		84	30	24	6	51	1.14		0.50	T.	5	18	3	Wm. Hessler.		
Neillsville.	Clark.	996	23	47.0	+ 2.4	85	30	21	6	47	1.96	- 0.86	0.80	T.	4			Wm. Heaslett.		
New Richmond.	St. Croix.	990	8	47.6		87	30	22	6	42	1.67		0.71	4.0	9	14	12	Franc A. R. Van Meter.		
Osceola.	Polk.	806	22	48.0	+ 3.9	87	30	23	12	43	1.26	- 0.96	0.56	3.0	6	15	8	Charles W. Staples.		
Park Falls.	Price.	1,492	22	43.2		82	30	17	6	49	3.08		1.41	1.15	0.5	18	1	Flambeau Paper Co.		
Portage.	Columbia.	809	24	48.9	+ 2.2	81	30	25	7	38	1.82	- 1.01	1.11	0.7	6	16	8	James H. Martin.		
Port Edwards.	Wood.	969	3	46.2		80	23	27	7†	47	2.35		0.68	4.0	6	19	4	Nekoosa-Edwards Pa. Co.		
Prairie du Chien.	Crawford.	628	22	49.3	+ 1.0	83	30	25	6	49	1.86	- 0.66	0.68	0	6	16	5	James A. Gillis.		
Prairie du Sac.	Sauk.	750	5	48.2		85	30	22	6	54	1.41		0.77	T.	5	16	5	Wis. River Power Co.		
Prentice.	Price.	1,551	15	42.6	+ 1.4	79	30	11	6	42	1.64	- 0.53	0.55	8.5	6	17	1	Joseph G. Lash.		
Rest Lake.	Villas.	1,600	0								2.16		1							

TABLE 1.—Climatological data for April, 1913. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.			
				Mean.	Departure from the normal.			Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.			Greatest in 24 hours.	Total snowfall, unadjusted.	Number of rainy days 0.01 inch or more.		
					Highest.	Date.	Lowest.							Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unadjusted.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
<i>Iowa.</i>																					
Albia.	Monroe.	959	15	51.4	+ 1.8	87	30	51	40	2.37	- 0.54	0.82	T.	10	18	4	8	sw.	J. I. Chenoweth.		
Algona.	Kossuth.	1,213	39	48.6	+ 2.4	84	30	26	51	36	4.35	+ 1.87	1.50	5.5	9	16	5	7	s.	Dr. F. T. Seeley.	
Alta.	Buena Vista.	1,513	22	48.0	+ 1.3	80	30	27	12	38	5.10	+ 2.07	1.30	10.8	10	16	7	7	nw.	David E. Hadden.	
Amana.	Iowa.	721	37	51.0	+ 2.6	83	30	29	51	42	2.19	- 0.72	0.53	0	7	14	7	7	s.	C. Schadt.	
Ames.	Story.	926	37	51.2	+ 2.1	85	30	28	51	40	4.15	+ 1.48	1.24	1.02	9	12	7	11	s.	Iowa State College.	
Baxter.	Jasper.	998	13	50.4	+ 1.6	85	30	27	51	37	3.07	+ 0.20	1.21	1.0	12	16	7	7	ne.	W. R. Vandike.	
Belle Plaine.	Benton.	886	23	51.6	+ 2.7	85	30	25	51	38	2.08	- 1.05	0.65	1.0	9	14	8	8	s.	O. C. Burrows.	
Belmond.	Wright.	1,184	3	45.4	-	87	30	27	51	39	3.35	-	1.00	2.6	12	9	13	8	se.	Geo. P. Hardwick.	
Bloomfield.	Davis.	881	6	52.7	-	87	17	30	13	37	4.13	-	1.65	T.	8	16	4	10	se.	Albert Power.	
Bonaparte.	Van Buren.	22	52.5	+ 2.3	85	17	30	5	37	3.53	+ 0.18	1.23	0	6	16	3	11	.....	B. R. Vale.	
Boone.	Boone.	1,134	8	49.0	-	86	30	28	27	37	3.47	-	1.03	T.	9	16	4	12	s.	C. F. Henning.	
Britt.	Hancock.	1,236	16	48.5	+ 2.8	85	30	26	5	37	3.21	+ 1.00	0.84	0.8	12	14	4	12	s.	L. M. Goodman.	
Buckingham.	Tama.	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.....	J. S. Gwynn.
Burlington.	Des Moines.	544	17	51.8	+ 0.3	85	17	30	13	37	3.25	+ 0.09	1.27	0	6	18	0	12	s.	Max E. Poppe, Jr.	
Carroll.	Carroll.	1,265	23	48.6	+ 0.5	84	30	29	13	43	3.15	- 0.05	0.76	2.0	9	15	2	13	ne.	Mrs. Jos. J. Wolfe.	
Cedar Rapids.	Linn.	733	31	50.5	+ 0.8	85	30	31	13	46	1.12	+ 1.62	0.50	1.0	6	14	1	15	e.	R. S. Toogood.	
Charles City.	Floyd.	1,015	22	48.6	+ 2.3	85	30	27	27	37	1.98	- 0.83	0.84	0.8	11	11	4	15	se.	U. S. Weather Bureau.	
Clear Lake.	Cerro Gordo.	1,241	15	49.3	+ 2.3	83	30	29	27	37	1.48	- 0.16	0.40	0.7	9	16	0	14	nw.	Oscar Stevens.	
Clinton.	Clinton.	593	46	51.6	+ 3.0	85	30	25	6	44	1.96	- 1.05	0.69	1.0	9	14	9	7	nw.	A. E. Reid.	
Columbus Junction.	Louisa.	595	12	52.4	+ 2.7	82	17	31	13	36	2.62	- 0.16	0.92	T.	6	19	7	4	s.	J. B. Johnston.	
Davenport.	Scott.	580	42	52.2	+ 2.0	83	17	32	27	32	2.19	- 0.69	0.73	1.2	9	12	7	11	e.	U. S. Weather Bureau.	
Decorah.	Winnesheik.	875	20	49.6	+ 1.9	S3	22	26	6	46	1.65	- 0.85	0.52	0	6	14	9	7	.....	F. H. Baker.
Delaware.	Delaware.	1,083	22	49.4	+ 3.6	S1	30	25	5	38	1.52	- 1.20	0.80	0.2	7	14	9	7	s.	Nettie E. Ball.	
Des Moines.	Polk.	861	35	52.0	+ 1.4	85	30	32	7	33	3.41	+ 0.43	1.05	0.9	11	13	4	13	s.	U. S. Weather Bureau.	
Dubuque.	Dubuque.	639	40	51.0	+ 2.1	80	30	31	6	33	1.70	- 1.22	0.83	0.2	7	13	5	12	s.	Do.	
Earlham.	Madison.	11	50.2	+ 2.4	84	30	26	28	43	2.82	- 0.86	0.72	0	13	14	5	11	nw.	George Phillips.		
Elkader.	Clayton.	727	34	48.9	+ 0.9	85	30	24	5	51	1.95	- 0.74	0.80	1.0	5	15	7	8	se.	Chas. Reinecke.	
Elma.	Howard.	1,182	3	46.2	-	84	30	25	5	40	2.01	-	0.65	1.1	9	13	10	7	s.	H. A. Moore.	
Estherville.	Emmet.	1,298	18	46.4	+ 0.1	85	30	25	5	40	4.75	+ 2.54	1.60	3.0	9	14	5	9	s.	A. O. Peterson.	
Fairfield.	Jefferson.	780	29	51.5	+ 1.7	S9	17	31	27	35	2.22	- 0.26	1.38	0	7	16	5	9	se.	R. M. McKenzie.	
Fayette.	Fayette.	1,003	23	48.3	+ 1.8	S4	30	28	5	43	1.84	- 1.18	1.10	2.5	6	17	3	10	se.	R. Z. Latimer.	
Forest City.	Winneshiek.	1,226	19	47.6	+ 1.1	85	30	26	5	39	3.44	+ 1.07	1.00	2.0	10	13	7	10	s.	J. A. Peters.	
Fort Dodge.	Webster.	1,126	13	49.1	+ 1.7	84	30	29	5	43	2.43	+ 1.06	0.75	2.0	9	12	5	11	s.	J. F. Monk.	
Fort Madison.	Lee.	516	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.....	Miss L. A. McCready.
Gilman.	Marshall.	1,052	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	J. L. Wylie.	
Grand Meadow.	Clayton.	1,180	22	48.6	+ 1.8	S0	30	27	51	33	1.71	- 1.26	0.68	1.5	9	13	7	10	nw.	F. L. Williams.	
Grimmell.	Poweshiek.	1,023	21	51.6	+ 1.3	87	30	30	5	40	3.94	+ 0.56	1.04	1.5	8	14	6	10	e.	D. W. Brainard.	
Grundy Center.	Grundy.	976	22	50.9	+ 3.5	87	30	27	27	41	3.16	+ 0.11	1.03	2.5	10	17	7	6	s.	J. B. Calderwood.	
Guthrie Center.	Guthrie.	1,077	18	51.0	+ 1.7	86	30	28	28	40	3.60	+ 0.88	0.99	T.	10	19	1	10	nw.	D. G. Beardsley.	
Hampton.	Franklin.	1,155	23	50.2	+ 2.9	87	30	25	27	43	3.17	- 0.11	0.85	4.3	9	12	8	10	s.	E. C. Grenelle.	
Humboldt.	Humboldt.	1,095	25	49.4	+ 1.1	87	30	20	12	44	3.35	+ 0.74	1.17	3.5	11	18	3	9	nw.	J. P. Peterson.	
Independence.	Buchanan.	921	49	49.8	+ 0.4	84	30	29	27	40	1.48	- 0.90	0.80	T.	7	16	8	6	nw.	R. E. Dudley.	
Indianola.	Warren.	969	22	51.6	+ 0.9	84	30	32	4	33	3.93	+ 0.53	1.10	1.9	11	14	4	12	se.	Prof. J. L. Tilton.	
Iowa City.	Johnson.	683	53	50.1	+ 1.6	S4	30	27	13	49	1.83	- 1.33	0.62	0.8	8	14	4	12	nw.	Prof. A. G. Smith.	
Iowa Falls.	Hardin.	1,170	20	47.6	+ 0.9	84	30	26	5	39	2.89	+ 0.01	1.00	5.3	9	14	5	11	nw.	J. B. Parmelee.	
Jefferson.	Greene.	1,052	14	50.2	-	88	30	27	5	41	3.21	+ 0.61	1.03	0.10	10	13	4	13	se.	Ora M. Hall.	
Keokuk.	Lee.	614	42	53.0	+ 1.0	S4	17	32	7	32	2.62	- 0.72	1.37	T.	6	12	10	8	s.	U. S. Weather Bureau.	
Keesauqua.	Van Buren.	644	21	51.2	- 0.4	84	30	27	13	49	3.97	+ 0.28	1.39	T.	8	8	13	9	se.	J. H. Landes.	
Knoxville.	Marion.	920	18	52.9	+ 1.7	84	30	32	4	47	3.60	+ 0.45	1.00	0.2	9	14	4	12	se.	Casey and Belleville.	
Lacona.	Warren.	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.....	J. B. Alter.
Lansing.	Allamakee.	632	8	49.4	-	85	30	25	6	43	1.22	-	0.35	T.	7	18	1	11	w.	Chas. R. Serene.	
Le Claire.	Scott.	576	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.....	Miss M. T. Disney.
Marshalltown.	Marshall.	947	21	50.6	+ 1.8	S8	30	28	5	40	3.01	+ 0.11	1.04	2.0	12	16	4	10	nw.	Jacob Elge.	
Mason City.	Cerro Gordo.	1,132	16	47.6	+ 0.1	85	30	23	5	41	1.48	- 1.17	0.64	1.2	7	12	10	8	s.	Dr. Roy Desart.	
Monroe.	Jasper.	922	1	51.4	-	86	30	31	5	39	4.31	-	1.28	T.	9	15	3	12	se.	J. A. Dibel.	
Mount Pleasant.	Henry.	729	32	52.2	+ 1.1	S2	17	30	5	37	3.57	+ 0.36	1.11	0.66	T.	8	17	7	6	sw.	J. W. Edwards.
Muscataine.	Muscataine.	554	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	.....	William Molis.
New Hampton.	Chickasaw.	1,169	16	48.2	+ 1.3	S5	30	28	5	40	2.24	+ 0.29	0.60	0.60	7	17	4	9	e.	A. F. Kennan.	
Nora Springs.	Floyd.	1,064	49.9	-	-	85	30	25	27	42	1.91	-	0.80	0.50	13	15	9	6	s.	Arthur Betts.	
Northwood.	Worth.	1,122	17	47.2	+ 0.7	S1	30	26	27	38	2.10	- 0.06	0.80	9.5	8	17	4	9	sw.	Chas. H. Dwelle.	
Olin.	Jones.	760	15	51.1	+ 4.2	83	30	28	13	44	1.45	- 0.83	0.50	T.	5	15	9	6	nw.	Dr. F. W. Port.	
Osage.	Mitchell.	1,184	26	49.1	+ 3.7	85	30	26	27	38	1.94	- 0.51	0.65	0.							

TABLE 1.—Climatological data for April, 1913. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.		
				Mean.			Departure from the normal.			Total.			Greatest in 24 hours.							
				Highest.	Date.	Lowest.	Greatest daily range.	Date.	Lowest.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeted.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.				
<i>Indiana.</i>																				
Collegeville.....	Jasper.....	14	50.8	+ 2.0	80	17†	27	6	48	2.42	- 1.08	0.02	0	6	10	15	7	w.	Otto Miller.	
Knox.....	Starke.....	8	50.2	—	80	22	27	20	38	2.44	0.55	0.07	0	10	15	5	9	n.	W. R. R. Tatman.	
Laporte.....	Laporte.....	17	48.8	+ 2.2	81	22	26	7†	40	3.28	+ 0.67	1.00	0	10	15	6	9	nw.	Wm. M. Walton, Jr.	
Plymouth.....	Marshall.....	10	48.5	—	78	22	26	7	38	2.34	0.45	0.45	0	10	15	7	8	ne.	J. W. Siders.	
South Bend.....	St. Joseph.....	20	49.2	+ 1.2	80	22	26	7	32	2.08	- 0.60	0.42	0	10	13	9	8	nw.	Henry H. Swaim.	
<i>Illinois.</i>																				
Aledo.....	Mercer.....	738	52.7	+ 2.7	84	17	31	13	39	2.14	- 0.69	0.62	T.	7	14	7	9	nw.	William B. Frew.	
Alexander.....	Morgan.....	670	52.7	- 0.2	81	2†	31	5†	38	2.97	+ 0.03	1.15	T.	9	11	9	10	n.	George H. Hall.	
Antioch.....	Lake.....	861	48.2	+ 3.0	81	23	26	20	41	3.35	- 0.93	0.72	T.	8	12	10	8	s.	J. C. James.	
Astoria.....	Fulton.....	650	51.8	+ 1.1	81	2	32	5†	40	3.35	- 0.14	1.20	T.	8	15	7	8	s.	Edward V. Bohl.	
Aurora.....	Kane.....	678	49.6	+ 1.6	80	23	26	6	46	2.16	- 0.78	0.56	T.	9	20	4	6	e.	Miss Alice M. Holden.	
Beardstown.....	Cass.....	448	—	—	—	—	—	—	—	4.34	—	1.47	—	0	7	9	8	ne.	Mrs. L. M. Rice.	
Bement.....	Platt.....	700	52.4	—	82	22	32	5†	40	3.71	—	1.04	T.	8	19	3	8	s.	N. N. Stevenson.	
Bloomington.....	McLean.....	840	52.0	+ 0.4	81	22	30	6†	38	3.38	- 0.45	0.89	T.	9	16	4	10	s.	Prof. H. N. Pearce.	
Cairo.....	Alexander.....	359	57.8	- 0.5	83	18	38	13	28	2.27	- 1.30	0.80	T.	11	12	7	11	s.	U. S. Weather Bureau.	
Camp Point.....	Adams.....	732	0	—	—	—	—	—	—	3.37	- 0.55	2.00	T.	0	5	—	—	—	Capt. D. M. Morris.	
Carbondale.....	Jackson.....	412	56.6	—	90	18	32	5	42	3.00	- 0.90	0	T.	13	18	3	9	s.	State Normal University.	
Carlinville.....	Macoupin.....	663	54.3	+ 0.3	84	22	28	5	41	3.31	- 0.81	1.46	T.	10	17	7	6	s.	Blackburn College.	
Carlyle.....	Clinton.....	470	28	—	—	—	—	—	—	3.37	- 0.55	2.00	T.	0	5	—	—	—	Hervey O. Jones.	
Chester.....	Randolph.....	380	21	—	—	—	—	—	—	3.63	- 0.63	0.94	T.	14	—	—	—	—	Charles S. Gollon.	
Clinton.....	DeWitt.....	727	3	51.9	—	80	22	30	15	38	4.31	—	1.17	T.	10	15	6	9	nw.	J. Frank Ziegler.
Cobden.....	Union.....	656	50.8	- 0.1	88	18	34	5	35*	3.19	- 1.43	0.90	T.	0	10	3	9	sw.	John Buck.	
Dakota.....	Stephenson.....	929	49.0	—	81	30	26	6	42	1.97	—	0.87	T.	6	13	9	8	se.	Elmer G. Smith.	
Decatur.....	Macon.....	685	52.0	- 0.1	82	22	32	15	40	3.55	+ 0.25	0.90	T.	9	19	3	8	se.	Prof. J. H. Coonradt.	
Dixon.....	Lee.....	725	50.9	+ 2.1	82	17†	27	6	41	2.55	- 0.23	0.75	T.	7	15	1	14	—	H. U. Bardwell.	
Du Quoin.....	Perry.....	459	56.2	0.0	87	18	34	5	39	2.29	- 1.62	0.90	T.	7	16	3	11	sw.	G. H. Knetzger.	
Dwight.....	Livingston.....	600	51.0	+ 1.5	81	23†	27	6	45	2.77	- 0.12	1.42	T.	8	12	7	11	ne.	Edward O. Welch.	
East St. Louis.....	St. Clair.....	481	2	—	—	—	—	—	—	3.50	—	1.93	T.	6	10	—	—	—	W. McK. Brown.	
Edwardsville.....	Madison.....	554	14	—	—	—	—	—	—	3.20	- 0.96	2.06	T.	8	—	—	—	—	W. H. Morgan.	
Elgin.....	Kane.....	716	6	50.6	—	80	23	28	20	41	3.49	—	0.85	T.	6	12	14	10	6	Elgin Observatory.
Ewing.....	Franklin.....	449	1	—	—	—	—	—	—	2.99	—	0.68	T.	0	12	—	—	—	Ewing College.	
Fairview.....	Fulton.....	733	2	—	—	—	—	—	—	2.70	—	0.88	T.	9	11	—	—	—	Abram Wilson.	
Galva.....	Henry.....	842	21	50.2	+ 0.7	81	17	29	27	40	2.36	- 0.67	0.67	T.	5	16	4	10	sw.	Prof. F. U. White.
Grafton.....	Jersey.....	422	20	—	—	—	—	—	—	3.30	- 0.36	1.50	T.	0	10	—	—	—	R. C. Goodrich.	
Greenville.....	Bond.....	635	35	55.7	+ 0.8	85	18	33	5	36	3.42	- 1.75	1.37	T.	8	19	2	9	e.	H. W. Reidemann.
Griggsville.....	Pike.....	650	28	54.6	+ 0.6	82	17†	34	5†	32	3.56	- 0.10	1.49	T.	10	17	4	9	w.	George F. Kneeland.
Havana.....	Mason.....	475	21	53.6	+ 0.5	84	2	32	15	32	4.24	- 0.11	1.25	T.	9	13	6	11	nw.	L. L. Euteneuer.
Henry.....	Marshall.....	500	25	52.1	+ 1.8	86	24	29	15†	48	2.20	- 0.99	1.14	T.	10	13	9	8	nw.	Dr. F. A. Powell.
Hillsboro.....	Montgomery.....	675	19	53.2	0.0	84	18†	32	5	42	2.30	- 0.95	1.38	T.	8	17	1	12	s.	Ira L. Woodward.
Joliet.....	Will.....	609	22	49.6	+ 1.0	81	23	29	20	44	2.51	- 0.18	1.04	T.	9	19	3	8	ne.	F. M. Muhlig.
Kishwaukee.....	Winnebago.....	730	25	50.2	+ 2.4	81	23†	28	6	44	2.05	- 1.16	1.75	T.	7	15	5	10	se.	George Stevens.
La Grange.....	Cook.....	657	21	49.0	+ 1.3	81	23	29	6	41	2.41	- 0.36	0.82	T.	8	12	10	8	sw.	Prof. F. E. Sanford.
La Harpe.....	Hancock.....	698	34	52.1	+ 0.8	84	17	29	5†	45	2.82	- 0.66	0.96	T.	6	21	3	6	nw.	George E. Campbell.
Lanark.....	Carroll.....	883	24	49.2	+ 1.6	80	17	23	6	46	1.91	- 1.20	0.90	T.	6	20	1	9	ne.	M. N. Wertz.
La Salle.....	Lasalle.....	536	8	51.0	+ 1.2	80	17	32	27	39	1.53	- 1.37	0.74	T.	9	11	7	12	s.	U. S. Weather Bureau.
Lincoln.....	Logan.....	575	25	52.0	- 0.1	82	22	29	14†	44	3.24	+ 0.22	0.80	T.	10	16	6	8	nw.	Prof. C. S. Oglevee.
Macomb.....	McDonough.....	700	9	—	—	—	—	—	—	3.16	—	1.09	0	10	—	—	—	—	State Normal University.	
Manteno.....	Kankakee.....	711	2	—	—	—	—	—	—	2.92	—	1.24	0	9	21	1	8	n.	J. F. Schmitz.	
Martinton.....	Iroquois.....	633	26	50.6	+ 1.2	82	22†	29	6	43	3.35	+ 0.10	1.20	T.	0	9	15	6	sw.	Joseph H. Peltier.
Mascoutah.....	St. Clair.....	425	23	55.1	+ 0.8	85	18	31	5	44	2.86	- 1.42	1.46	T.	0	20	2	8	s.	Dr. Robert F. Lischer.
Minonk.....	Woodford.....	745	20	51.6	+ 1.3	81	23	29	20	40	3.08	+ 0.09	1.24	T.	0	11	7	9	ne.	John C. Danforth.
Monmouth.....	Warren.....	784	21	52.3	+ 1.3	83	17	30	13†	41	2.91	- 0.25	0.61	T.	0	9	16	2	s.	Dr. J. C. Hutchison.
Morris.....	Grundy.....	518	2	51.0	—	80	23	27	6	43	2.46	—	0.95	T.	8	14	7	9	e.	E. G. Cryder.
Morrison.....	Whiteside.....	685	19	50.8	+ 1.6	82	17†	26	6	44	1.70	- 1.56	0.71	T.	6	17	5	8	sw.	S. A. Maxwell.
Morrisonville.....	Christian.....	638	14	52.4	+ 0.6	81	22	31	12	36	3.55	- 0.10	1.24	T.	0	9	18	3	s.	J. D. Lowis.
Mount Vernon.....	Jefferson.....	511	19	54.2	- 0.3	86	17	32	5	43	2.94	- 0.65	1.13	T.	0	9	12	7	n.	Theodore P. Stelle.
Nashville.....	Washington.....	503	13	50.4	—	82	30	29	13†	43	3.03	- 0.17	1.34	T.	0	10	5	13	n.	H. M. Potter.
Oregon.....	Ogle.....	702	4	50.4	—	82	30	29	13†	43	1.59	—	0.57	T.	0	7	9	3	18	Samuel Ray.
Ottawa.....	Lasalle.....	500	26	52.3	+ 1.6	84	30	31	15	46	2.09	- 0.84	0.95	T.	0	7	9	3	se.	Miss Maude M. Harris.
Pana.....	Christian.....	692	27	—	—	—	—	—	—	2.71	—	1.15	T.	7	—	—	—	—	Dr. G. N. Gilbert.	
Pawpaw.....	Lee.....	693	1	—	—	—	—	—	—	2.71	—	1.15	T.	7	—	—	—	—	A. C. McBride.	
Peoria.....	Peoria.....	609	57	51.7	+ 0.8	80	2	32	27	37	3.54	+ 0.26	1.60	T.	0	9	13	8	e.	U. S. Weather Bureau.
Pontiac.....	Livingston.....	546	11	52.0	+ 1.4	81	23†	31	15	39	2.97	- 1.06	1.35	T.	12	11	6	13	n.	George Butterworth.
Quincy.....	Adams.....	481	7	54.2	—	84	17	33	13	36	3.12	—	1.39	T.	0	5	—	—	—	Fred J. Brinkoetter.
Riley.....	McHenry.....	956	54	48.8	+ 2.9	79</														

TABLE 2.—*Daily precipitation for April, 1913. District No. 5, Upper Mississippi Valley.*

Stations.	Watershed.	Day of month.																													Total.			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
<i>North Dakota.</i>																																		
Amenia.	Red.	.16	.39	T.																													1.20	
Bottineau.	Mouse.	.06																															0.32	
Bowbells.	do.			T.																													0.40	
Cando.	Sheyenne.																																0.02	
Crosby.	Mouse.																																0.53	
Devils Lake.	Sheyenne.	11	.35																														0.53	
Donnybrook.	Mouse.	16																															1.15	
Dunseith.	do.	13																															0.53	
Eckman.	do.																																0.00	
Edmore.	Sheyenne.																																0.00	
Fessenden.	James.	.09	.17																														1.25	
Forman.	Sheyenne.																																0.89	
Grafton.	Red.	.22	.31																														0.85	
Granville.	Mouse.	.74																															0.51	
Hannah.	Pembina.	.31																															0.63	
Hansboro.	Red.	.25																															1.09	
Hillsboro.	do.	.33	.14																														0.51	
Lakota.	Sheyenne.	.03	.75	T.																													1.43	
Langdon.	Pembina.	.23	.20																														0.51	
Larimore.	Red.	.20	.45																														0.89	
Lisbon.	Sheyenne.		.10																														0.97	
McKinney.	Mouse.																																0.20	
McLeod.	Sheyenne.		.10																														0.87	
Manfred.	do.	.05	.23																														1.26	
Mayville.	Red.	.24	.21																														0.95	
Milnor.	do.	.06																															1.10	
Minot.	Mouse.	.38	.17																														0.94	
Minto.	Red.																																0.71	
Oriska.	Sheyenne.	.12																															1.16	
Park River.	Red.	.20	.05																														0.57	
Pembina.	do.	.04	.18	.10																													0.58	
Power.	Sheyenne.	.10	.10																														0.90	
Towner.	Mouse.																																0.43	
University.	Red.	.44	.11																														1.08	
Walhpeton.	do.																																0.42	
Walhalla.	Pembina.																																0.43	
Westhope.	Mouse.																																0.35	
Willow City.	do.	T.																																
<i>Minnesota.</i>																																		
Albert Lea.	Mississippi.	30																																1.85
Alexandria |||.	do.	.07	.03																														1.71	
Angus.	Red.	.49																															0.87	
Bagley.	do.	.40																															0.79	
Baudette.	Rainy.	.10	.15																														1.05	
Beardsley.	Minnesota.	T.	T.																														1.72	
Bemidji |||.	Mississippi.	15	.17	.08																													1.48	
Bird Island.	Minnesota.	T.	.21	.10																													2.12	
Brainerd.	Mississippi.	.16	.03																														2.32	
Caledonia |||.	do.	.09	.49	.38																													1.32	
Campbell |||.	Red.	.06	.02																														1.09	
Cass Lake |||.	Mississippi.	.31																															1.41	
Collegeville.	do.	.06	.14																														2.73	
Crookston |||.	Red.	T.	.38																														1.13	
Detroit |||.	Rainy.	T.	.36	T.																													1.03	
Ely.	Rainy.	T.	.26	T.																													1.85	
Fairmont (near).	Minnesota.	.29																															3.70	
Faribault |||.	do.	.18	.08																														1.03	
Farmington.	Red.	.08	.02																														1.01	
Fergus Falls.	do.	.15	.13	.03																													1.32	
Fosston.	Red.	.36																															0.90	
Glencoe.	Mississippi.																																1.55	
Grand Meadow.	do.	.34	.13	.11																													1.52	
Gull Lake Dam.	do.	.08	.03																														1.14	
Hallock.	Red.	T.	.50	.01				</td																										

TABLE 2.—*Daily precipitation for April, 1913. District No. 5—Continued.*

TABLE 2.—*Daily precipitation for April, 1918. District No. 5—Continued.*

TABLE 2.—*Daily precipitation for April, 1913. District No. 5—Continued.*

* Precipitation included in that of the next measurement.

[†] Separate dates of falls not recorded.

| Precipitation for the 24 hours ending on the morning when it is measured.
T Precipitation is less than 0.01 inch rain or melted snow.

1. Precipitation is less than 0.01 inch fall of melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for April, 1913. District No. 5, Upper Mississippi Valley.

Date.	North Dakota.										Minnesota.										Pine River Dam.		St. Paul.		Winnibigoshish.			
	Bottineau.		Devils Lake.		Lisbon.		Minot.		Pembina.		Collegeville.		Crookston.		Grand Meadow.		Montevideo.		Moorhead.		New Ulm.		Pine River Dam.		St. Paul.		Winnibigoshish.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.	50	27	52	31	57	24	51	29	48	22	59	32	52	29	59	31	59	25	59	28	59	27	57	27	58	36	55	26
2.	43	29	39	32	43	30	44	32	44	34	49	36	39	32	57	39	48	34	42	34	57	30	49	33	43	38	50	32
3.	45	27	42	30	46	33	50	28	49	32	36	30	41	34	52	34	39	34	42	34	37	35	37	30	38	31	37	28
4.	50	36	48	27	56	25	50	25	48	22	47	29	45	29	46	30	52	32	48	30	51	32	36	30	49	31	38	25
5.	51	28	49	29	59	24	56	26	44	28	50	30	46	29	52	28	49	25	54	32	57	24	42	27	53	32	48	22
6.	44	32	42	34	51	29	51	30	41	34	46	29	46	31	53	29	48	32	48	34	55	29	47	17	49	34	47	20
7.	34	32	35	28	47	34	35	31	41	30	40	29	44	34	42	30	34	32	41	31	35	33	48	14	41	32	43	24
8.	38	27	35	30	42	30	41	31	38	30	39	28	37	32	41	30	37	29	36	31	39	31	41	25	43	34	40	30
9.	41	28	39	30	43	30	40	29	42	28	39	28	43	32	40	30	34	31	40	32	35	31	40	30	37	31	42	30
10.	52	26	49	31	49	28	52	25	49	27	33	29	50	32	45	30	37	30	52	31	35	32	43	27	34	31	48	32
11.	57	27	53	29	52	30	59	25	55	28	51	29	54	30	39	30	52	27	55	29	51	32	56	28	46	32	55	30
12.	75	33	67	34	60	25	76	34	51	30	56	32	56	31	56	27	54	29	58	26	60	16	58	32	62	22	68	23
13.	72	36	69	40	75	30	78	32	58	36	68	35	65	34	63	30	74	33	71	31	64	28	70	26	69	36	68	27
14.	82	42	81	41	80	30	83	41	70	38	66	30	73	39	69	33	76	35	73	28	69	21	67	38	68	27	70	40
15.	77	46	82	42	87	36	82	35	82	40	79	47	78	40	72	41	83	45	87	40	76	41	83	30	79	45	80	40
16.	67	38	72	45	80	42	63	45	72	49	77	50	77	44	74	47	84	46	82	49	78	48	79	30	78	52	81	41
17.	63	37	66	43	74	47	66	44	55	44	71	48	69	49	72	45	76	48	70	49	74	45	68	43	73	51	74	45
18.	65	29	64	34	62	40	68	30	54	30	62	42	61	40	60	44	67	40	62	41	68	43	60	38	62	46	58	35
19.	63	33	62	34	67	27	68	30	71	31	60	37	60	33	61	30	65	31	64	31	65	34	59	26	60	40	68	34
20.	56	38	54	36	68	38	53	40	67	42	55	30	62	36	53	35	56	46	60	36	55	39	60	28	56	38	60	25
21.	78	37	77	42	84	38	80	42	76	40	74	40	75	42	74	39	82	41	79	41	80	44	71	38	78	43	70	36
22.	63	42	68	47	81	44	61	47	71	51	83	57	75	43	78	55	87	50	82	54	80	47	76	46	83	59	68	42
23.	52	37	53	37	60	43	52	39	56	42	73	45	56	45	72	57	62	45	56	44	67	60	73	48	72	57	70	42
24.	56	24	52	30	62	38	58	32	48	30	45	35	49	40	60	40	56	39	51	35	47	41	48	32	61	38	45	34
25.	36	21	37	26	48	31	37	27	40	18	52	34	40	29	61	31	58	34	45	31	61	36	59	29	60	36	40	27
Mns.	57.2	32.4	56.9	34.4	63.0	33.5	59.9	33.2	54.5	32.7	57.7	35.9	57.2	35.9	59.1	35.6	60.3	36.0	60.3	35.3	59.6	35.9	58.8	30.1	59.2	39.1	57.4	31.4

Date.	Wisconsin.										Iowa.										Des Moines.		Dubuque.		Keokuk.			
	Eau Claire.		Grantsburg.		Hancock.		La Crosse.		Madison.		Prentice.		Wausau.		Algona.		Cedar Rapids.		Charles City.		Davenport.		Des Moines.		Dubuque.		Keokuk.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
1.	59	32	61	27	57	32	59	31	56	38	52	20	52	32	57	31	62	39	58	31	64	41	66	40	60	37	65	42
2.	53	39	50	37	55	37	51	42	48	39	50	20	39	35	74	42	72	39	64	43	76	46	68	44	79	53	64	44
3.	42	36	40	31	40	36	45	37	50	35	45	25	39	33	65	35	53	42	53	33	68	56	61	36	65	43	48	35
4.	44	33	45	29	40	36	45	33	40	31	32	23	33	29	46	31	46	34	46	30	58	33	50	32	43	34	48	35
5.	50	29	51	23	47	28	51	30	45	32	32	17	40	28	55	26	55	32	53	28	56	35	53	33	53	33	58	35
6.	54	22	51	18	50	24	51	26	48	31	30	11	45	28	51	33	53	33	52	32	55	35	57	38	52	31	55	40
7.	47	28	46	25	45	26	43	33	39	28	40	12	42	23	45	30	36	35	40	33	41	32	48	32	41	33	46	32
8.	50	33	48	33	43	30	49	35	42	31	40	18	43	27	35	32	40	32	43	34	43	37	34	47	35	39	35	
9.	43	34	44	32	41	33	41	34	39	32	44	30	40	31	36	32	40	34	37	33	42	36	40	36	53	39		
10.	36	32	36	32	35	33	39	35	44	34	37	31	33	32	36	31	49	35	38	34	34	42	37	50	38	41		
11.	43	33	50	32	39	32	42	33	38	33	34	30	37	31	41	31	42	36	41	32	43	37	42	34	42	36	42	37
12.	58	25	61	20	51	31	55	32	44	34	48	20	50	29	50	28	53	35	54	31	45	36	52	38	43	36	58	33
13.	69	27	70	32	65	27	65	31	58	31	54	24	62	28	61	30	60	31	62	29	61	33	62	35	61	33	58	33
14.	66	27	69	23	63	30	65	33	58	34	60	25	58	29	69	34	66	32	68	33	60	30	70	38	63	40	60	40
15.	78	32	81	44	74	32	75	39	66	36	71	34	70	30	74	39	72	40										

TABLE 3.—*Maximum and minimum temperatures for April, 1913. District No. 5—Continued.*

Date.	Hannibal, Mo.		Laporte, Ind.		Illinois.																	
					Cairo.		Greenville.		Lasalle.		Monmouth.		Mount Vernon. ^{§§}		Peoria.		Springfield.		Winnebago.			
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.....	67	39	58	37	69	49	72	41	61	38	66	38	74	34	65	43	64	43	60	33		
2.....	82	54	63	40	76	58	82	51	76	45	79	48	81	43	80	50	82	51	65	48		
3.....	71	44	72	55	70	59	73	60	70	56	72	55	72	55	73	56	70	58	69	50		
4.....	49	37	67	35	62	48	66	42	59	38	59	35	55	48	59	35	59	39	50	33		
5.....	60	34	48	33	55	45	62	33	54	34	58	33	62	32	56	33	58	35	53	30		
6.....	59	43	45	29	67	49	63	41	52	32	58	32	60	33	54	35	56	39	52	26		
7.....	49	37	45	26	57	50	55	40	42	34	50	34	50	43	40	35	45	36	42	30		
8.....	41	38	48	28	55	47	43	38	46	34	37	33	50	40	40	35	43	34	41	32		
9.....	60	41	44	34	63	53	62	41	44	37	46	36	62	40	48	39	56	43	42	33		
10.....	59	39	60	37	59	48	60	47	59	43	52	43	52	50	42	56	43	59	37			
11.....	42	38	59	34	48	45	52	41	46	39	44	37	51	34	42	38	44	40	48	38		
12.....	42	38	43	34	49	42	45	39	39	37	42	36	47	40	39	36	41	36	43	35		
13.....	56	34	48	34	48	38	53	37	57	35	59	30	50	37	56	37	53	37	59	29		
14.....	67	41	53	34	63	43	66	36	59	38	65	38	64	36	61	36	64	38	60	33		
15.....	68	38	58	30	63	45	66	35	66	32	69	32	65	37	66	32	64	37	68	30		
16.....	77	39	67	33	69	49	77	42	75	41	75	43	75	40	74	37	74	44	77	46		
17.....	85	46	78	39	76	54	83	48	80	47	83	48	86	43	80	44	81	49	80	45		
18.....	76	52	72	50	83	60	85	56	72	47	80	52	82	54	75	49	78	57	67	50		
19.....	64	48	61	34	71	57	75	50	64	39	66	40	69	50	63	41	64	45	65	35		
20.....	61	45	62	26	64	51	66	40	55	33	60	38	63	42	59	40	61	40	52			
21.....	76	49	65	32	76	48	76	40	68	39	71	43	74	43	70	43	74	44	67	33		
22.....	82	62	81	41	78	63	84	51	78	54	80	53	82	53	80	54	83	53	79	52		
23.....	80	57	80	55	75	62	79	57	79	60	80	60	80	57	79	60	79	60	81	58		
24.....	64	50	75	55	70	62	78	60	74	52	71	54	75	62	76	52	75	52	77	52		
25.....	57	46	70	40	62	47	61	46	52	42	57	44	51	48	52	41	52	43	54	44		
26.....	63	42	61	40	63	45	64	37	61	39	64	39	64	36	62	36	62	40	61	35		
27.....	56	39	50	35	59	47	55	40	56	32	59	30	54	40	55	32	53	40	59	33		
28.....	65	36	50	37	64	44	65	39	64	36	67	35	62	40	64	37	64	41	58	35		
29.....	71	36	60	38	71	49	75	40	71	34	73	32	71	40	73	35	71	42	74	32		
30.....	82	49	76	37	78	53	81	48	79	40	81	43	76	43	79	45	78	48	81	38		
Means.....	64.4	43.0	60.6	37.1	65.4	50.3	67.5	43.9	61.9	40.2	64.1	40.5	65.3	43.1	62.5	40.9	63.5	43.6	61.4	37.8		

^{a, b, c, etc.}, indicate respectively 1, 2, 3, etc., days missing from the record.^{§§} Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.